

APPENDIX G: Melt/pour Incidents Elsewhere

The following table summarizes explosions that have occurred in melt/pour operations at other sites. These accounts indicate the degree of hazard associated with melt/pour operations and the types of initiating events that must be controlled. The source of this data is the U.S. Army and the IME.

Date	Event Description	Outcome	Location
7/24/16	Clogged draw-off pipe was being cleared with brass rod, which impinged heated Amatol (60/90) against steel pipe, causing detonation.	1 Fatality 3 Injuries	Trent, Great Britain
11/04/18	Foreign material was present in the melt pot due to lack of screening of fresh TNT or reworked Amatol. Approximately 1,200 lbs. of TNT was added to the pot from boxes without screening or examination. About 200 lbs. of scrap Amatol was added directly.	64 Fatalities 100 Injuries	Perth Amboy, New Jersey
12/12/41	Sublimed TNT crystals in ventilator duct due to high TNT vapor (0.87 mg/m ³) caused the explosion. Sublimed TNT crystals are sensitive to friction, impact, or static spark.	13 Fatalities 53 Injuries	Burlington, Iowa
3/4/42	Draw-off valves slamming shut were suspected in detonation of TNT (60-40 Amatol). Also, the exhaust-ventilation system was clogged by sublimation. The TNT vapor level was 0.80 mg/m ³ .	22 Fatalities 84 Injuries	Burlington, Iowa
3/24/45	A hot-water hose with brass nozzle was being forced into a clogged draw-off pipe on a TNT melt unit. Impact or friction caused the explosion.	2 Fatalities	Joliet, Illinois
5/26/45	The agitator impacted a screen in a mixing pot or the valve diaphragm failed, resulting in metal-to-metal contact in TNT melt operation.	9 Fatalities 6 Injuries	Grand Island, Nebraska

Date	Event Description	Outcome	Location
10/01/51	Excess Comp-B detonated when warheads struck each other or fell to ground. Metal-to-metal contact of items coated with Comp-B caused the detonation.	5 Fatalities	Hawthorne, Nevada
2/20/59	Friction between a steel spatula and concrete floor contaminated with DNT-sublimated crystals caused a detonation.	1 Injury	Dottikon, Switzerland
7/6/61	Prolonged heating of 60 lbs. of molten Pentolite (55% PETN/45% TNT) led to detonation after seven hours. (Rotary valve was involved in explosion.)	Property damage	Seneca, Illinois
10/8/63	Cyclotol (70% RDX/30% TNT) detonation caused by impingement of explosives with spark-proof hammer and screwdriver while cleaning draw-off lines and valves.	2 Fatalities	Milan, Tennessee
8/16/68	Detonation of cyclotol melt operation probably caused by adding "riser scrap," which is explosive solidified in the risers used to fill projectiles and grenades, that normally is introduced into the melt pot when the molten explosive could bathe the scrap and soften it for re-melting. If riser scrap added prematurely, impact of the agitator could provide source of detonation. Evidence of detonation inside the melt pots was found.	6 Fatalities 4 Injuries	Shreveport, Louisiana
7/25/79	Decomposition of PETN during melting released oxides of nitrogen. Heat was removed but the reaction continued until detonation.	Property damage	East Camden, Arizona
8/18/89	A clogged draw-off line had been removed from a pot. Pentolite in the line detonated when struck by a non-sparking screwdriver with a rawhide mallet.	2 Fatalities	Joplin, Missouri